Jan. 27, 1931. W. D. HARVEY 1,790,045

COLLAPSIBLE MASH FEEDER

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Fig. 1

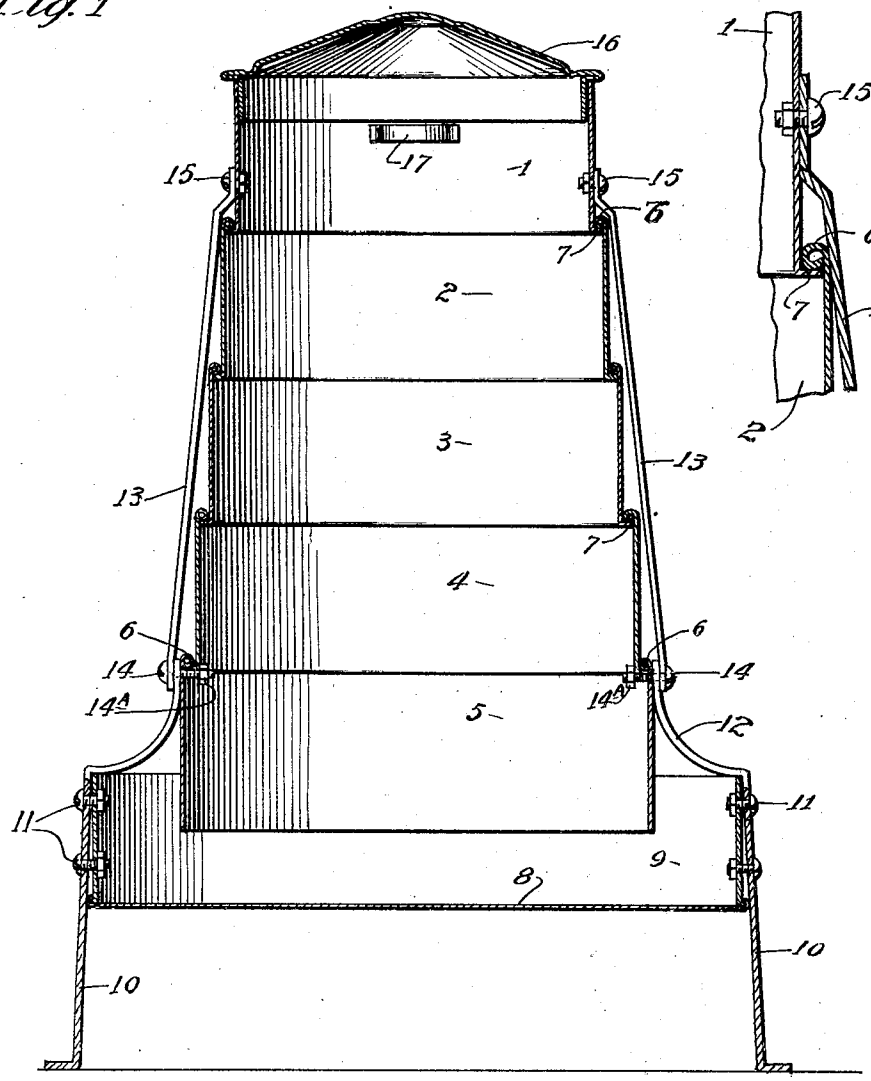


Fig. 2

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Fig. 4

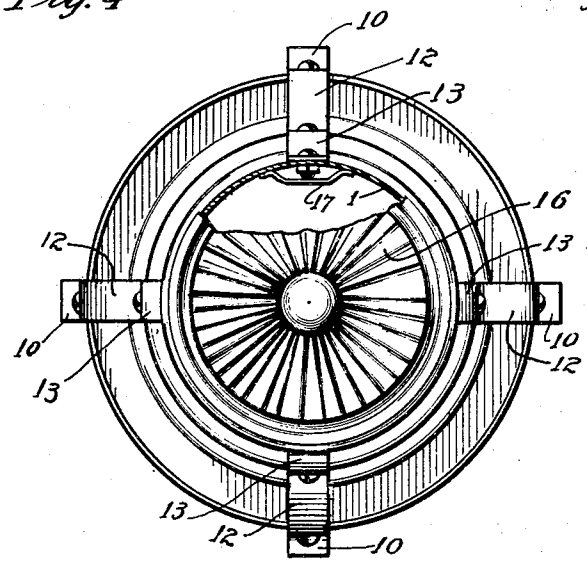
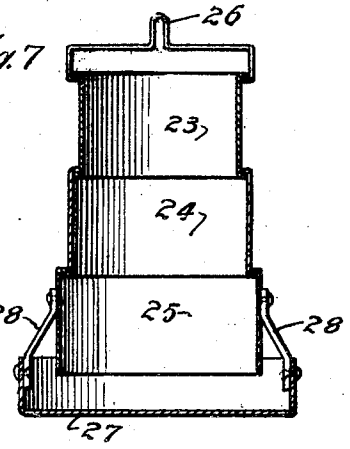


Fig. 7



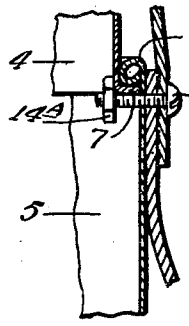


Fig. 3

Fig. 5

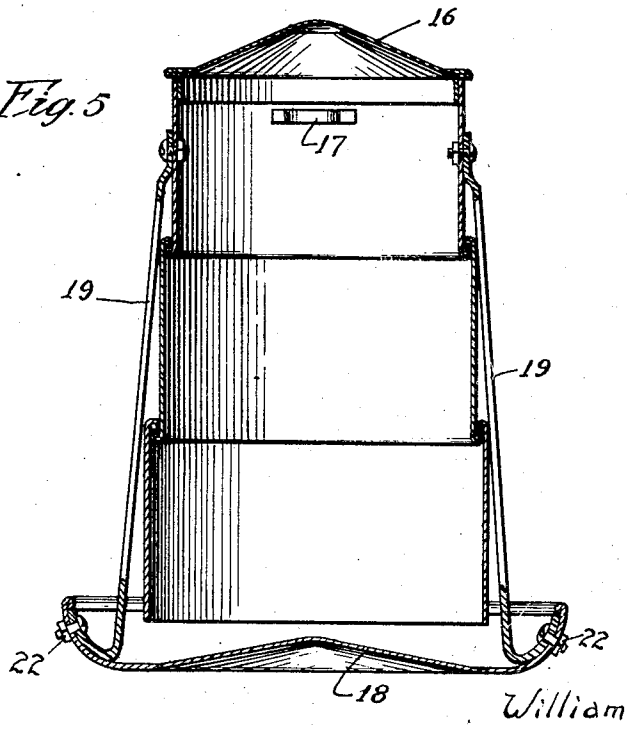
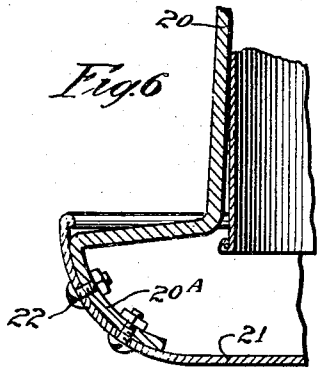


Fig. 6



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UNITED STATES PATENT OFFICE

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COLLAPSIBLE MASH FEEDER

Application filed March 14, 1928. Serial No. 261,447.

My invention relates to feeders of the general type in which mash or the like is fed by gravity from the lower end of an upright container into a pan. Such feeders have heretofore been used with satisfaction by chicken raisers, in small sized types having a single piece tube as the major portion of the container.

However, an enlarging of such feeders to a considerably greater storing and feeding capacity has not proven so satisfactory with a single-piece container tube, for these reasons: first, because of the bulky packaging required for the container, which unduly increases the packing and shipping expenses. Second, because of the greatly increased risk of damage in transit to such feeders unless heavy crating or boxing is used to protect the container of the feeder. And third, because the bulkiness of the feeder requires an undesirably large storage space for them both at the factory and at the dealers' establishments.

My invention aims to overcome all of these objects by providing a feeder of this class in which the container is collapsible into a relatively small form, so as to reduce the space required for storing it, and also to reduce the packing and shipping costs as well as the risks of damage in transit. Furthermore, it aims to provide a feeder including a collapsible feeder constructed so that its constituent sections interfit even when the feeder is collapsed, thereby reinforcing each other against damage in transit. So also, my invention aims to provide simple and effective means for supporting the container from its upper section so that gravity will expand it, and to provide means for supporting the pan in proper relation to the lower end of the container, and aims to provide these supporting means in an arrangement which permits their compact packing while affording an easy erection of the feeder.

Furthermore, my invention aims to provide means rigidly connecting the top and bottom sections of the container for holding all of the sections in alinement.

Still further and also more detailed objects will appear from the following specification and from the accompanying drawing, in which

Fig. 1 is a central and vertical section through a feeder embodying my invention.

Fig. 2 is an enlargement of a portion of Fig. 1, showing the disposition of parts adjacent to the upper end of one of the supporting members.

Fig. 3 is an enlargement of another portion of Fig. 1, showing the disposition of the parts adjacent to the connection between the two constituent parts of one of the supporting members.

Fig. 4 is a reduced plan view of the feeder of Fig. 1, with a portion of the cover broken away.

Fig. 5 is a central and vertical section through another feeder embodying my invention, namely one in which the pan seats on the ground and in which a three-section container is suspended from supporting members mounted on the pan.

Fig. 6 is a fragmentary section showing another arrangement of a lower portion of a feeder of the general type of Fig. 5.

Fig. 7 is a central and vertical section through another embodiment of certain features of my invention, namely one adapted to be suspended from a ceiling and in which gravity holds the container expanded.

Referring first to Figs. 1 to 4 inclusive, these show a feeder in which the container consists of five relatively superposed sections (numbered from 1 to 5) which can be collapsed telescopically into one another so that their joint packaged height will be substantially that of a single one of these sections. Each section is a generally cylindrical tube of somewhat smaller outside diameter than the next lower section, and each section above the lowest one has at its lower end an outwardly directed flange 7 which slidably fits the bore of the next lower section. Each section below the top one has its upper end bent radially inward to form an inward flange 6 overhanging the outwardly directed flange 7 at the bottom of the next higher section in the expanded container, as shown in Figs. 2 and 3.

Underhanging the container is a pan

which has its bottom 8 underhanging the lower end of the container, and which has its side portion 9 spaced radially outward from the lowest section 5 of the container, with the upper edge of this pan side 9 somewhat above the lower end of the container.

To support both the container and the pan rigidly in their above described disposition, I employ a plurality of detachable supporting members spaced circumferentially of the container. In Figs. 1 to 4, each of these supporting members consists of two parts, one being a lower portion including a leg 10 fastened to the side 9 of the pan by detachable bolts 11, and an inwardly bent upper spacer portion 12 which is connected to the upper bar portion 13 of the supporting member by a detachable bolt 14. This bolt 14 preferably has its shank spaced from the inturned upper end flange 6 on the lowest section 5 by a distance which is only slightly greater than the thickness of the outwardly directed flange 7 on the lower end of the next section 4.

The upper end of the bar portion 13 is secured to the top section 1 of the container by a bolt 15, and the length of the bar is preferably such that when thus connected to the top section, the container will be expanded by gravity and will have its lower end disposed somewhat below the upper end of the pan.

If desired, my supporting members and their connections may also be arranged to clamp certain adjacent sections radially to each other. Thus, Fig. 3 shows the nut 14A of each bolt 14 as of sufficient diameter to engage the inner face of the second lowest section 4, so that the tightening of this bolt will clamp the upper portion of the lowest container section 5 tightly between the lower end portion of the next section 4 and the upper part of the said spacer portion 12 of the adjacent supporting member. The upper end of the container may be closed by any suitable cover 16, and the top section 1 of the container preferably has handles 17 by means of which the container can readily be lifted and expanded, these handles being inwardly directed so as not to interfere with the collapsing of the container. When the feeder is erected, the container is suspended from the supporting members and gravity holds it expanded, with the flanges of adjacent sections seated on each other.

By constructing each of the supporting members of a plurality of parts, I reduce the space required for storing and packing them, and I can also employ lower support portions of different lengths interchangeable for varying the height of the pan above the floor. However, I do not wish to be limited to a two-piece construction of the supporting members, nor to the extending of the connecting bolts 14 through a container section (as shown in Figs. 1 and 3), nor to other details of the construction and arrangement above described, since many changes may be made without departing either from the spirit of my invention or from the appended claims.

For example, Fig. 5 shows an embodiment of my invention in which the pan 18 seats on the floor and has the recurved lower ends of single-piece supporting members 19 detachably bolted to it, with the container suspended freely between the circumferentially spaced supporting members.

Fig. 5 also shows outwardly rolled end flanges at the lower ends of the two upper sections and on the upper ends of the two lower sections. Fig. 6 shows a differently bent portion 20A at the lower end of the supporting member 20, and shows this as secured to the curved side of a pan 21 by two bolts 22.

Fig. 7 shows a feeder comprising three sections (23, 24 and 25) having flat interengaging end flanges, and a bale 26 connected to the top section 23, so that the entire feeder can be suspended from this bale. The pan 27 is supported from the lower section 25 by suspending members 28, and in this case the bale 26 forms the means which are manually grasped to expand the collapsed container.

I claim as my invention:

1. A feeder for mash or the like, including a vertically collapsible upright tubular container composed of sections each of which is smaller in diameter than the section above it, each section above the lowest one having its lower end disposed within and smaller in outside diameter than the next lower section, whereby each section except the top section is supported by the next higher one, a pan underhanging and freely spaced from the bottom of the lowest section of the container and rigid members spaced circumferentially of the container, each such member being secured to both the pan and the uppermost section of the container for maintaining the container rigidly distended.

2. A feeder as per claim 1, in which each of the rigid members is secured also to the lowermost container section but extends freely past the intermediate sections.

3. A feeder as per claim 1, including an inwardly projecting handle on the top section of the container whereby the initially collapsed container may be upwardly distended prior to the fastening of the said rigid members to the uppermost section of the container, and a detachable cover fitted to the top of the container above both the handles and the fastening of the said rigid members to the uppermost section.

4. A feeder as per claim 1, in which the top section has an inward flange at its upper end, and in which each section above the bottom section has an outwardly directed flange underhanging the flange on the upper end of

the next lower section, whereby the said outwardly directed flange on one section limits the downward sliding of the next lower section and supports the latter section.

5. A feeder for mash or the like, comprising a vertically collapsible and upright container comprising interlocking superposed sections constructed so as to be expanded by gravity when lifted from its upper end, a pan having its bottom underhanging the container, and supporting means connected to the top section of the container for supporting the container and pan, the supporting means being disposed outside the container and extending freely past intermediate sections of the container.

6. A feeder as per claim 1, in which the supporting means comprise plural members spaced circumferentially of the feeder; each such member comprising two portions extending respectively upward and downward from the lowest container section, and a detachable fastening member securing the two portions of such member conjointly to each other and to two sections of the container.

Signed at Chicago, Illinois, March 8th, 1928.

WILLIAM DOW HARVEY.